

1 **CLAIMS:**

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3 What is claimed is:

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- 5 1. A method of cleaning a gas well comprising:
- 6 a. injecting into a well an aprotic solvent wherein an aprotic solvent solute is
- 7 formed from the reaction of the aprotic solvent, solids and debris in the well
- 8 and surrounding formation;
- 9 b. removing said aprotic solvent solute from the well and formation;
- 10 c. injecting into the well a protic solvent wherein a protic solvent solute is
- 11 formed from the reaction of the protic solvent, solids and debris in the well
- 12 and surrounding formation; and,
- 13 d. removing said protic solvent solute from the well and formation.
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- 15 2. The method of claim 1 wherein the aprotic solvent is chosen from the group
- 16 consisting essentially of ethers, ketones and halogenated hydrocarbons.
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- 18 3. The method of claim 1 wherein the aprotic solvent is dimethyl sulfoxide,
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- 20 4. The method of claim 1 wherein the aprotic solvent is acetone.
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- 22 5. The method of claim 1 wherein the aprotic solvent is dimethyl formamide.
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- 24 6. The method of claim 1 wherein the aprotic solvent is tetrahydrofuran.
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- 26 7. The method of claim 1 wherein the aprotic solvent is methylene chloride.

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2 8. The method of claim 1 wherein the protic solvent is water.

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4 9. The method of claim 1 wherein the protic solvent is ammonia.

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6 10. The method of claim 1 wherein the protic solvent is hydroxide.

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8 11. The method of claim 1 wherein the protic solvent is caustic soda.

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10 12. The method of claim 1 wherein the protic solvent is sodium hydroxide.

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12 13. The method of claim 1 further comprising determining the solvating capacity of
13 the aprotic solvent solute.

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15 14. The method of claim 1 further comprising determining the solvating capacity of
16 the protic solvent solute.

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- 1 15. A system for cleaning a gas well comprising:
- 2 a. means for injecting into a well an aprotic solvent wherein an aprotic solvent
- 3 solute is formed from the reaction of the aprotic solvent, solids and debris in
- 4 the well and surrounding formation;
- 5 b. means for removing said aprotic solvent solute from the well and formation;
- 6 c. means for injecting into the well a protic solvent wherein a protic solvent
- 7 solute is formed from the reaction of the protic solvent, solids and debris in
- 8 the well and surrounding formation; and,
- 9 d. means for removing said protic solvent solute from the well and formation.
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- 11 16. The system of claim 15 wherein the aprotic solvent is chosen from the group
- 12 consisting essentially of ethers, ketones and halogenated hydrocarbons.
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- 14 17. The system of claim 15 wherein the aprotic solvent is chosen from the group
- 15 consisting essentially of dimethyl sulfoxide, acetone, dimethyl formamide,
- 16 tetrahydrofuran and methylene chloride.
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- 18 18. The system of claim 15 wherein the protic solvent is chosen from the group
- 19 consisting essentially of water, ammonia, hydroxide caustic soda and sodium hydroxide.
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- 21 19. The system of claim 15 further comprising means for determining the solvating
- 22 capacity of the aprotic solvent solute.
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- 24 20. The system of claim 15 further comprising means for determining the solvating
- 25 capacity of the protic solvent solute.
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